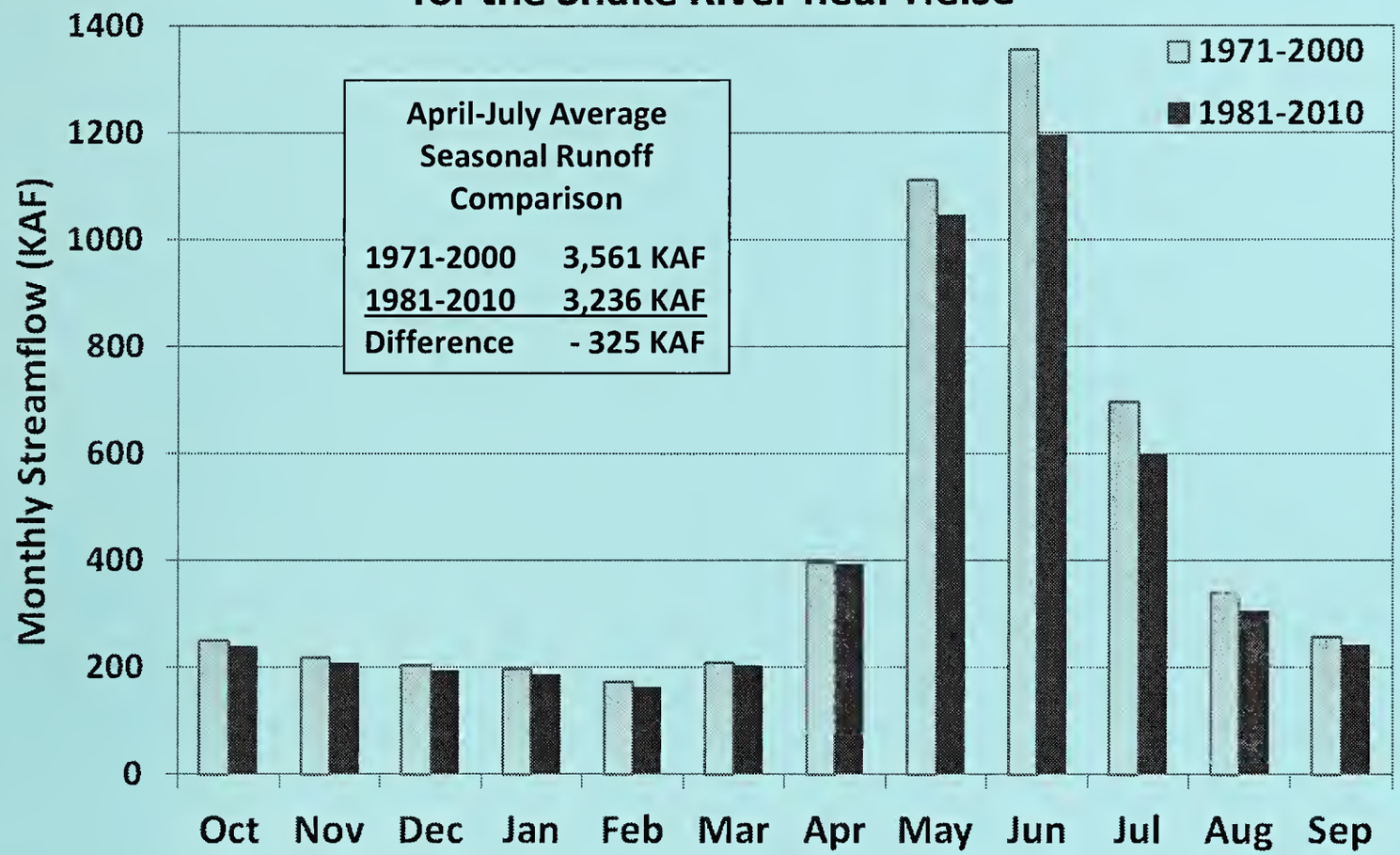
NRCS

United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report March 1, 2013

Comparison of 1971-2000 vs 1981-2010 Average Monthly Streamflow for the Snake River near Heise



Streamflow in Idaho's rivers has decreased over the last 30 years. The above graph illustrates monthly changes in streamflow for the Snake River near Heise. Average April-July streamflow for the 1981-2010 reference period is 325,000 acre-feet less than the average for the 1971-2000 period. This represents a 9% less volume. Across Idaho, April-July volumes averaged an 11% drop from the 1971-2000 averages. One of the largest plunges was 22% for the Bear River below Stewart Dam. This point's new April-July average is 183,000 acre-feet or 51,000 acre-feet less than the 1971-2000 average of 234,000 acre-feet. The lower normals are a result of dropping the wet 1970s and adding the drier 2000s to the 30 year average calculation period. When making decisions using streamflow forecasts water users are encouraged to base their judgments on volumes rather than percentages since the new lower averages inflate percentages. For more information about the shift in streamflow averages see the Streamflow section of this report.

Basin Outlook Reports
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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when the snow melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to produce runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertainty is in the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

IDAHO WATER SUPPLY OUTLOOK REPORT
MARCH 1, 2013

Thank you to those who helped conserve resources last month by printing their water supply report from the Internet. We were able to reduce printing and mailing to 326 recipients. In 2002, the mailing list had 600 recipients. Hardcopies of the March 1 Water Supply Report will be bulk mailed. **In an effort to save additional resources this will be the last printing and mailing of the Idaho Water Supply Report.** Users can access reports from: http://www.id.nrcs.usda.gov/snow/watersupply/. If you do not have access to the internet to view the reports online, please let us know and we will try to accommodate your needs. If you want to be added to our email notification list when reports are available, send an email to: IDBOISE-NRCS-SNOW@one.usda.gov

SUMMARY

Abundant fall rains and above normal early snow through December produced a great start to the 2013 water year. Now after two months of below normal precipitation, where do we stand? If this were a baseball game, Mother Nature's relief pitcher that started in early January is keeping runners from scoring. We are getting runners on base, with little storms, but nothing to brag about. Currently, Idaho's snowpack ranges from 70-105% of median across most of the state, and we are in the seventh inning. There are six to eight weeks left in this winter season to accumulate snow in the high country. The new 1981-2010 normals, which are lower than last year's 1971-2000 normals, make percentages sound ok, however if March is dry the downward slide in percentages will continue and the snowpack will be 60-85% of median by April. Streamflow forecasts are the lowest in the Bear River at only 14% average and even the highest forecasts in central Idaho are now just predicting near normal volumes. The majority of streams are forecast in the 70-90% of average range. Let's hope March brings a real slugger to the plate that can knock in a grand slam, to ensure a winning water supply season.

SNOWPACK

The elevation dependent snowpack that started with the fall storms still remains. This is especially true in the Boise basin with the higher elevations above 7,000 feet carrying the snowpack percentages. Lower elevation sites will melt out sooner than normal when the warm temperatures occur because of the lack snow below 6,500 feet. Know what elevation your water supply comes from; this is especially true in Mores and Camas creeks in central Idaho and the Bear River basin, where last year's snow and runoff was low and this year's snowpack is even less than last year's. To help you continue process the new normals, an updated comparison of snow percentages for March 1 using old and new normals is available at: ftp://ftp-fc.sc.egov.usda.gov/ID/snow/data/averages/Mar1-71vs81.pdf

PRECIPITATION

We used to say that spring weather can make or break our forecasts, but this year it may come down to March precipitaton. After a great start in November and December, major storms have ceased to track across the state for two months. Luckily temperatures have been on the colder than normal side and small storms have trickled across parts of the state. Now after two months of below normal precipitation, the question is - what will March bring? After March, the chance to catch-up with more snowfall becomes slim. Nothing is impossible, but snowy springs like 2011 are unusual. Persistence is often the most accurate forecast, expect more of "what you see, is what you get", until the models and the sky tell you different. Our recent pattern of cool temps with some snow is not all bad news. February brought enough snowfall to freshen snow fields for winter recreationists and cold temperatures kept the snow from melting; both of which are better than a February thaw. Comparing this year to the past, 2002, 1968 and 1963 are most similar analog years. Each of these years had neutral type ENSO conditions with cooler than normal temperatures and normal to slightly below

normal precipitation for the March, April and May time period. This agrees with the National Weather Service's 6-10 and 8-14 day outlooks which are trending towards these patterns through mid-March; this will keep the snow from melting early. The longer term March, April and May 90 day forecast also call for near to slightly below normal temperatures and precipitation for Idaho. The best forecast would be for abundant March precipitation, but short of that, preserving what snow already exists is the best we can hope for.

RESERVOIRS

Reservoirs are in good shape with the exception of Magic reservoir, which is only 14% full, 38% of average because of fall drafting for dam maintenance. Coeur d'Alene Lake is waiting for its first runoff event since the December rains. Dworshak Reservoir and the Payette system are 74% full, while the Boise system is 60% full, Little Wood and Mackay reservoirs are 63% and 78% full respectively. Combined storage in Jackson Lake and Palisades Reservoir is 55% full, 91% of average. Oakley, Salmon Falls and Owyhee reservoirs are 20-40% full, which is 60-90% of average. Storage in Bear Lake remains encouraging at 63% full, 127% of average.

STREAMFLOW

As illustrated on this month's cover, the streamflow normals for the new 1981-2010 normal period are lower than the previous averages. This is due to several reasons, but mainly the wet 1970s were replaced with dry years from the 2000s. This is evident by looking at a rolling 30 year average for annual flow which peaks around the year 2000. This was the last year included in the 1971-2000 averages. Since then, the rolling 30 year average has declined. For an illustration of this see the 1 Year Annual Streamflow graphs on the Surface Water Supply Index web page: http://www.id.nrcs.usda.gov/snow/watersupply/swsi-main.html. The table below illustrates the changes in the April-July average volume for 1971-2000 and 1981-2010 periods for various rivers across Idaho. Statewide the new averages are 11% lower than the old averages.

Station Name	71-00 Ave April-July Streamflow (KAF)	81-10 Ave April-July Streamflow (KAF)	Difference (KAF)	% Difference from 71-00 Ave
Bear R bl Stewart Dam	234	183	-51	-22%
Oakley Reservoir Inflow	29	24	-5	-17%
Big Wood R bl Magic Dam	292	250	-41	-14%
Big Lost R bl Mackay Res	141	123	-19	-13%
Salmon Falls nr San Jacinto	70	80	-10	-13%
Bruneau R nr Hot Spring	208	183	-25	-12%
Little Lost R nr Howe	31	28	-4	-12%
Little Wood R nr Carey	87	77	-10	-11%
Boise R nr Boise	1414	1261	-153	-11%
Teton R nr St Anthony	405	367	-38	-9%
Snake R nr Heise	3561	3236	-325	-9%
Payette R nr Horseshoe Bend	1618	1477	-141	-9%
Salmon R at White Bird	5851	5369	-481	-8%
Moyie R at Eastport	403	374	-30	-7%
Clearwater R at Spalding	7430	6890	-540	-7%
Teton R nr Driggs	165	154	-11	-7%
Spokane R nr Post Falls	2553	2389	-164	-6%
Weiser R nr Weiser	392	370	-21	-5%
Falls R nr Ashton	380	365	-15	-4%
Henrys Fk nr Ashton	544	532	-12	-2%

Similar to the precipitation and snow water equivalent percentages, streamflow forecast percentages may seem higher than last year because the new normals for the 1981-2010 period are lower than the averages for the 1971-2000 period across the state. Users should compare amounts in acre-feet for a true measure of this year to last year.

Note: The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water. Forecasts published in this report are produced by the NRCS with the exception of the NWS main-stem Snake River forecasts.

RECREATION

Spring time in Idaho – pick your pleasure. Depth of snow at Idaho's SNOTEL sites range from 15 inches in the lower elevations at Long Valley and Graham Guard Stations to over 90 inches at Deadwood Summit, Crater Meadows and Bear Mountain in northern Idaho. Lack of low snow means you will be able to access these elevations earlier than normal, while the higher, and deeper snowpacks will provide ideal flows for river runners. Desert river running opportunity may exist, but optimists should keep their eye on the sky and jump when there is a change to warm temperatures or rain. Flows won't last long with the snowpack at 72% of median for the Owyhee and 91% for the Bruneau, keep in mind based on the 1971-2010 averages these percentages drop to 70% and 90% respectively. Here is quick refresher that uses inches of snow water instead of percentages to judge the Bruneau's river running opportunities: Bear Creek SNOTEL usually needs a peak snow water content of about 20 inches to produce an adequate whitewater runoff season without a wet spring. On March 1 Bear Creek had about 16 inches of snow water, so hopefully it will pick up four more inches in March. In the past using the 1971-2000 average (22.4 inches) the target April 1 percentage used to be 89%, now using the 1981-2010 median (18.9 inches) the target April 1 percentage is 106%. Additional snowmelt-streamflow relationship information is available on the Idaho Peak Streamflow Resources Internet page. Know your boating skill levels, watch that spring weather or come learn more about long range weather and streamflow predictions at the Western Snow Conference in Jackson in April!

WESTERN SNOW CONFERENCE – APRIL 15-18, 2013

The 81st annual Western Snow Conference is coming to Jackson, Wyoming April 15-18. The theme for this year's conference is "Wild Weather in the Wild West". Monday's Short Course and panel discussion on "New Strategies and Techniques in Long Range Weather & Streamflow Forecasting" will be of interest to water users, managers, forecasters and farmers. Many farmers and agencies use long range streamflow forecasts for wise planning, hydropower production, reservoir operations and mitigation of floods and droughts. This forum will discuss the current state of weather forecasting, the advancement of long range streamflow forecasting, trends in climate cycles and timeline discussion of agricultural decisions that are made based on the coming season's water supply outlook. The conference kicks off Tuesday with presentation of current studies and research. A Technical Wildlife and Hydrology Tour is on Thursday to discover how the local snowpack plays a critical role in the environment and local area. This will be an all-day bus tour and once-in-a-lifetime tour that is not available anywhere else. Our tour guide is Phil Farnes, ex-Montana Snow Survey Supervisor, and retired 23 year snow consultant who spent much of his career studying the snow and interactions with wildlife and vegetation in the greater Yellowstone area. Come and learn about these relationships and how they may help you better understand what is happening in your own backyard. Conference registration and information is available at: http://www.westernsnowconference.org/.

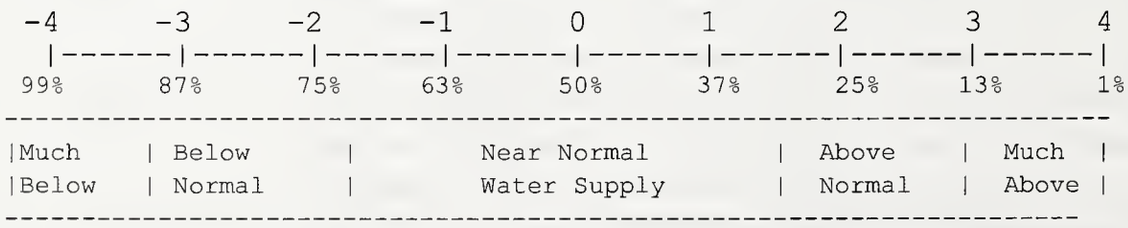
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) March 1, 2013

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1981 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

BASIN or REGION	***SWSI Value***	***Most Recent Year With Similar SWSI Value***	***Agricultural Water Supply Shortage May Occur When SWSI is Less Than***
Northern Panhandle	0.0	2007	NA
Spokane	-1.8	2007	NA
Clearwater	-1.3	2004	NA
Salmon	-0.5	2003	NA
Weiser	-1.0	2005	NA
Payette	-0.5	2010	NA
Boise	-1.3	2002	-1.6
Big Wood	0.0	2010	-0.1
Little Wood	0.8	2012	-1.9
Big Lost	0.5	2009	0.4
Little Lost	-0.3	2012	1.1
Teton	-2.0	2002	-3.9
Henrys Fork	-0.8	2005	-3.2
Snake (Heise)	-1.8	2007	-1.6
Oakley	-0.3	2009	-0.4
Salmon Falls	-1.3	2000	-1.1
Bruneau	-0.3	2008	NA
Owyhee	-0.5	2012	-3.4
Bear River	0.5	2001	-3.3

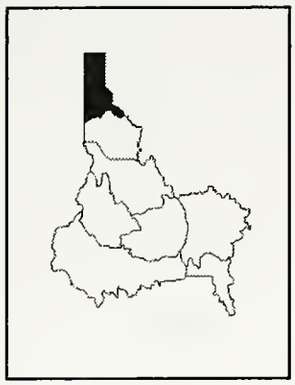
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

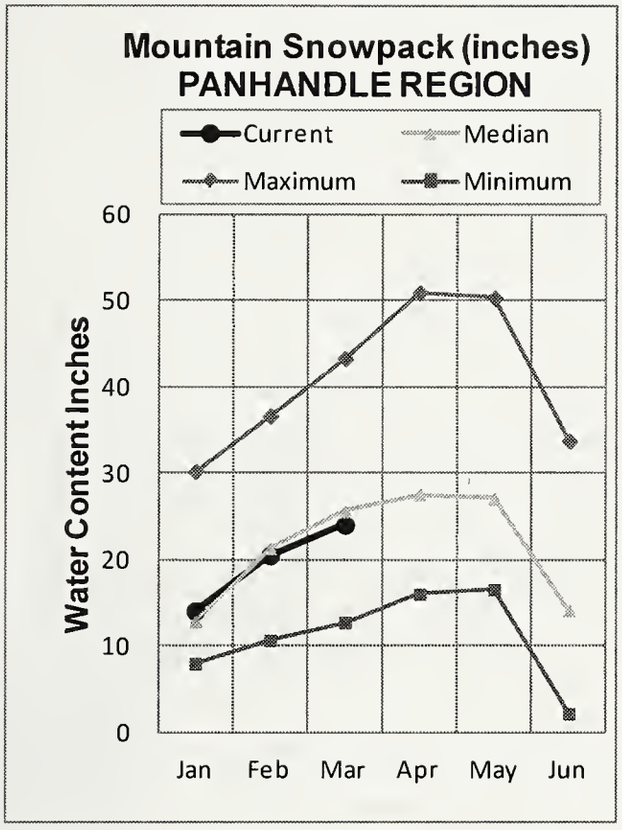


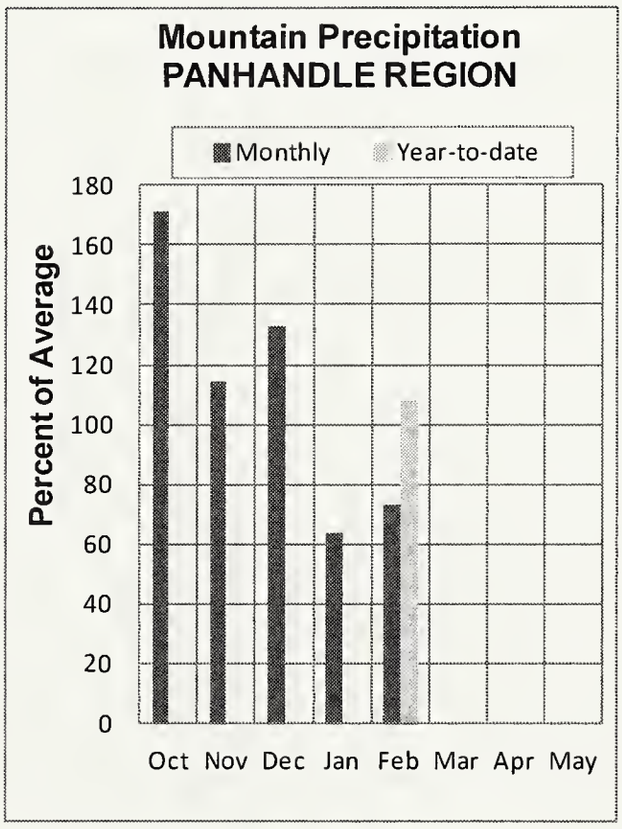
NA=Not Available / Not Applicable; Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION

MARCH 1, 2013







WATER SUPPLY OUTLOOK

After a good wet start to the water year, the last two months have seen just two-thirds the normal January–February precipitation amount. The water year total, while declining in percentage, still looks OK at 102% of average in the Spokane basin and 114% in the Northern Panhandle Region. Last month's below normal precipitation caused a drop in the snowpack percentages from 102% in the Northern Panhandle Region to 97%; and about 85% in the Spokane basin. This may be only a minor concern at this time for the expected summer water supply because the abundant rain early in the water year prior to the snow accumulation season brought the soil moisture profile to an excellent pre-season condition. The wet soil profile helps streamflow respond quickly with the onset of warm weather and start of the melt season. The major reservoirs in this region, Pend Oreille, Priest Lake, and Coeur d'Alene, vary considerably this month at 117, 88, and 51 percent of average, respectively; and are in good shape to handle any unexpected sudden runoff events. As with the snowpack, this year's streamflow forecasts show a wide range – lower to the south and higher to the north. Major rivers to note are the St. Joe River forecast at 83% of normal, Spokane River near Post Falls at 81%, Pend Oreille inflow at 98%, and Moyie River at 100%. Overall, water supplies this year should be very good – no major shortages and no dire worries for super abundant runoff. However, depending on storm patterns later this spring and melting of the lower elevation snowpack, northern Idaho is always a potential for rapid runoff if heavy pacific storms roll in at a critical time when the snow is actively melting.

PANHANDLE REGION
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<== Drier == Future Conditions == Wetter ==>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	APR-JUL	5480	6220	6560	99	6900	7640	6600
	APR-SEP	6440	7180	7510	99	7840	8580	7590
Moyie R at Eastport	APR-JUL	293	342	375	100	408	457	375
	APR-SEP	300	350	385	100	420	470	385
Boundary Ck nr Porthill	APR-JUL	90	102	111	95	120	132	117
	APR-SEP	93	106	115	94	124	137	123
Clark Fork at Whitehorse Rpds (1,2)	APR-JUL	7880	9540	10300	98	11100	12700	10500
	APR-SEP	8640	10500	11300	98	12100	14000	11500
Pend Oreille Lake Inflow (2)	APR-JUL	9550	10800	11600	98	12400	13700	11800
	APR-SEP	10400	11700	12600	98	13500	14800	12800
Priest R nr Priest River (1,2)	APR-JUL	640	725	785	101	845	930	780
	APR-SEP	675	765	830	100	895	985	830
NF Coeur d'Alene R at Enaville	APR-JUL	350	490	585	84	680	820	700
	APR-SEP	385	525	620	84	715	855	740
St. Joe R at Calder	APR-JUL	645	780	870	83	960	1100	1050
	APR-SEP	700	835	930	83	1020	1160	1120
Spokane R nr Post Falls (2)	APR-JUL	1240	1660	1940	81	2220	2640	2390
	APR-SEP	1300	1720	2010	81	2300	2720	2480
Spokane R at Long Lake (2)	APR-JUL	1440	1890	2200	84	2510	2960	2620
	APR-SEP	1610	2080	2390	84	2700	3170	2850

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Hungry Horse	3451.0	2889.0	2788.0	2209.0
Flathead Lake	1791.0	725.3	845.0	812.8
Noxon Rapids	335.0	308.9	309.3	313.9
Pend Oreille	1561.3	930.0	562.1	792.6
Coeur d'Alene	238.5	67.2	82.5	132.8
Priest Lake	119.3	50.2	56.0	57.1

PANHANDLE REGION
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Kootenai ab Bonners Ferry	14	85	91
Moyie River	3	82	89
Priest River	5	94	106
Pend Oreille River	78	82	91
Rathdrum Creek	3	106	89
Coeur d'Alene River	8	84	89
St. Joe River	5	81	87
Spokane River	15	85	87
Palouse River	2	85	95

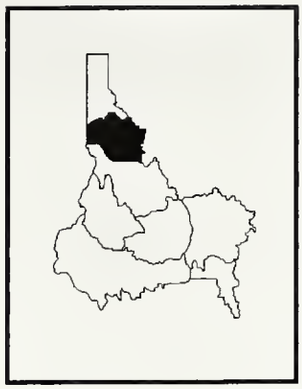
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

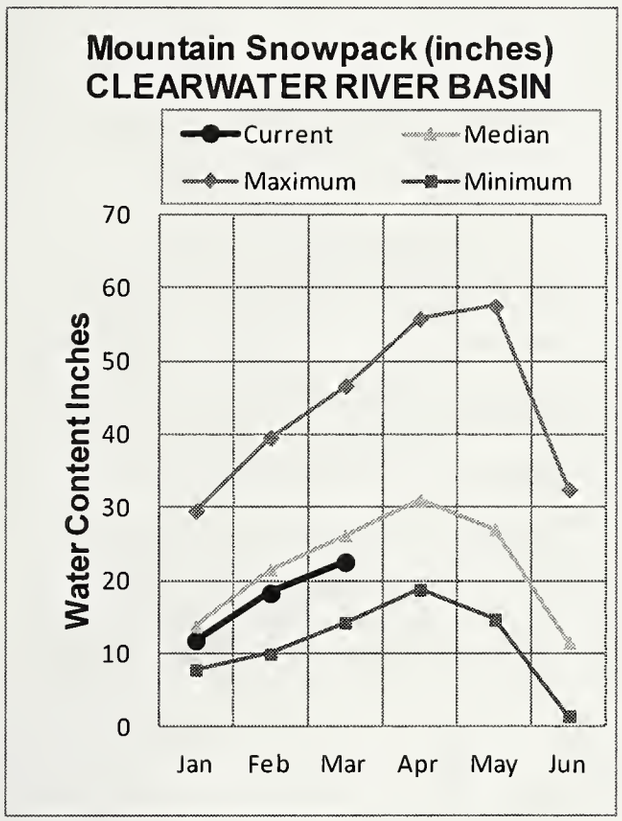
The average is computed for the 1981-2010 base period.

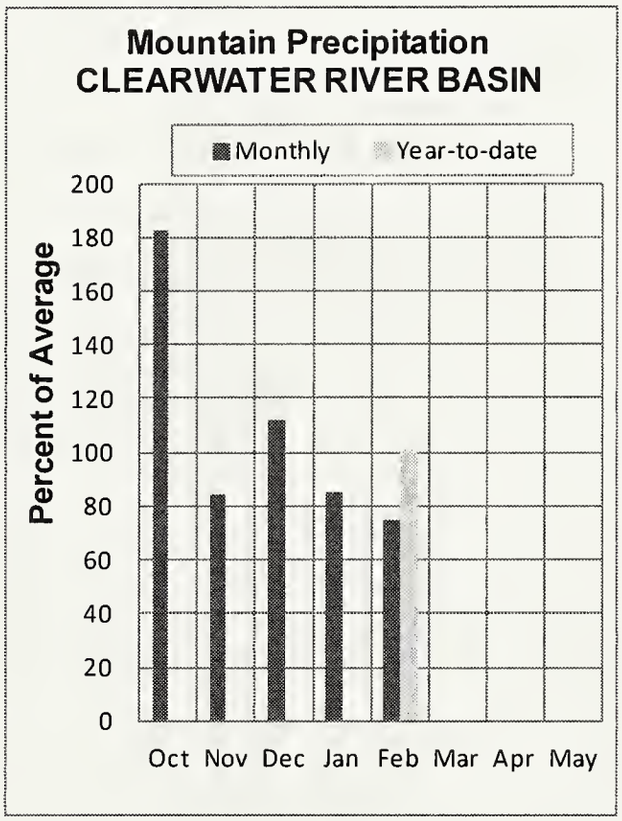
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

CLEARWATER RIVER BASIN

MARCH 1, 2013







WATER SUPPLY OUTLOOK

The Clearwater Basin could certainly use some more snow! January and February are two of the three most productive precipitation months for the year. With the past two month's precipitation below normal at 85% and 75% respectively, the impacts are being felt. Water year to date totals are now right at 100% for the first time this year. The snowpack was already lagging from January's below normal precipitation but basically held steady in the Clearwater basin increasing slightly from 85% of median on February 1 to 87% on March 1. The snowpack and water year to date precipitation percentages are significantly different because much of the early winter precipitation fell as rain rather than snow, causing a delay in the normal start of the permanent seasonal mountain snow cover. In addition, precipitation totals are compared to the 1981-2010 AVERAGES while snow water equivalent is compared to the 1981-2010 MEDIANS. This may help explain how the snowpack maintained steady percentages during March even with below normal precipitation amounts. Hydrologically speaking, the fall rain resulted in a very wet soil profile so when the snow starts to melt, stream response should be fairly quick. In other years with drier soils in winter, it takes a couple inches or more of initial snow melt water to fill the soil profile before producing runoff, just like a dry sponge absorbing water. Dworshak Reservoir has above average storage, 109% of average, 74% full and appears well prepared for the lower than normal projected summer runoff. The April–July forecast (50% exceedance) for Dworshak inflow dropped from last month and is now at 89% of average. Elsewhere, the Selway and Lochsa rivers are forecast below normal levels but are well suited for whitewater action in May and June!

CLEARWATER RIVER BASIN
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	1410	1620	1770	92	1920	2130	1920
	APR-SEP	1480	1710	1860	92	2010	2240	2020
Lochsa R nr Lowell	APR-JUL	995	1160	1270	90	1380	1550	1410
	APR-SEP	1050	1220	1330	90	1440	1610	1480
Dworshak Res Inflow	APR-JUL	1400	1910	2140	89	2370	2880	2410
	APR-SEP	1520	2040	2280	89	2520	3040	2570
Clearwater R at Orofino (1)	APR-JUL	2700	3560	3950	92	4340	5200	4310
	APR-SEP	2860	3750	4160	92	4570	5460	4540
Clearwater R at Spalding (1,2)	APR-JUL	4180	5570	6200	90	6830	8220	6890
	APR-SEP	4450	5890	6540	90	7190	8630	7270

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2581.6	2362.2	2358.0

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
North Fork Clearwater	9	80	86
Lochsa River	2	74	85
Selway River	4	72	87
Clearwater Basin Total	16	79	87

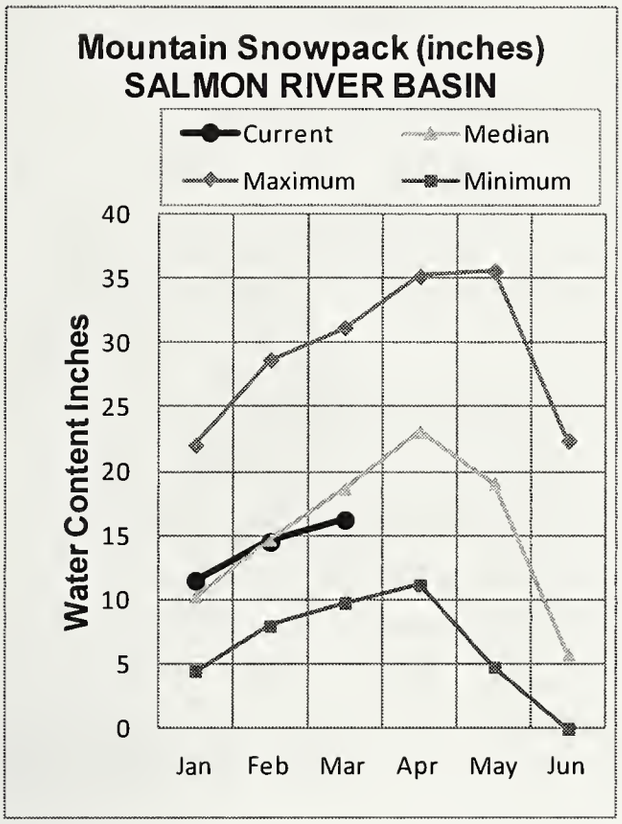
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

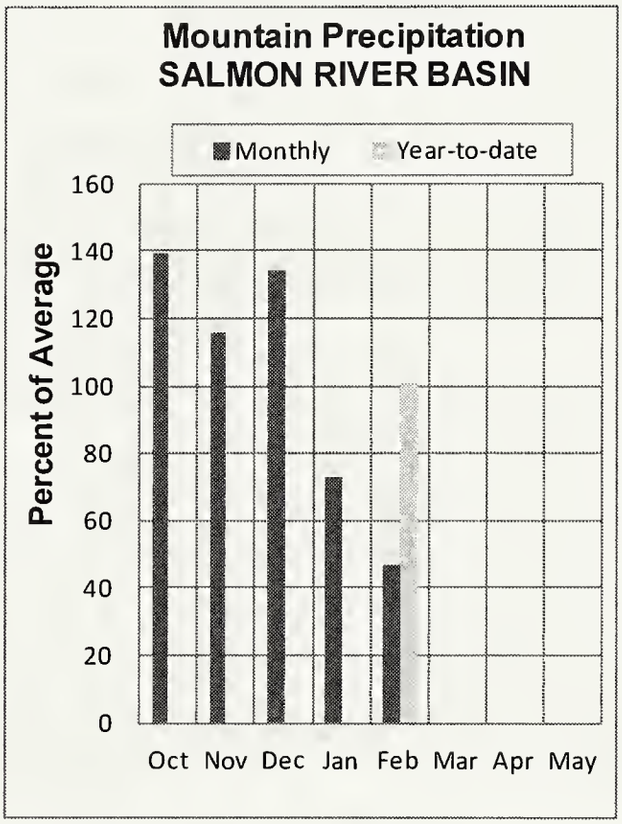
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SALMON RIVER BASIN

MARCH 1, 2013





WATER SUPPLY OUTLOOK

February was a dry month throughout Idaho and the Salmon Basin was not an exception. The Salmon basin only received half of normal amounts in February, continuing the dry trend started in January when 73% of normal precipitation fell. Water year to date precipitation amounts have dropped to normal after what had been a wet start to this season. For a whole, the Salmon basin snowpack decreased from 101% of median a month ago to 91% on March 1. Snowpacks in the Salmon River tributaries range from a low of 77% of median in the low elevation Little Salmon to normal conditions in the Lemhi basin. The MF Salmon River and most other tributaries are in the 90-95% of normal range. With the lack of precipitation the past two months, streamflow forecasts continued the downward slide throughout February, down another 10-20 percentage points from last month. The Salmon River near White Bird is forecast at 5,150,000 acre-feet, 87% of average. This would equate to 79% of the 1971-2010 average value. River runners and water users need to get used to the new normals. The higher percentages are a lot like river runner stories; you need to decipher the facts from the inflated percentages or numbers. Overall, this year's runoff will still be promising; the volumes will not be as high last year. There are still six to eight weeks left in the snowpack accumulation season in these central mountains, so let's hope this roller coaster precipitation pattern bottoms out and starts climbing again. Peak flows and timing of runoff are spring weather dependent.

SALMON RIVER BASIN
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	APR-JUL	420	610	695	90	780	970	775
	APR-SEP	490	710	810	90	910	1130	900
Lemhi R nr Lemhi	APR-JUL	34	51	64	87	79	104	74
	APR-SEP	43	62	77	86	94	121	90
MF Salmon R at MF Lodge	APR-JUL	370	515	615	89	715	860	690
	APR-SEP	415	575	685	89	795	955	770
SF Salmon R nr Krassel RS	APR-JUL	154	199	230	85	260	305	270
	APR-SEP	172	215	245	85	275	320	290
Johnson Ck at Yellow Pine	APR-JUL	117	146	166	87	186	215	191
	APR-SEP	128	158	178	87	198	230	205
Salmon R at White Bird (1)	APR-JUL	2910	4090	4630	86	5170	6350	5370
	APR-SEP	3230	4550	5150	87	5750	7070	5940

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Salmon River ab Salmon	10	90	93
Lemhi River	10	106	102
Middle Fork Salmon River	3	103	94
South Fork Salmon River	3	104	90
Little Salmon River	4	82	77
Salmon Basin Total	28	94	91

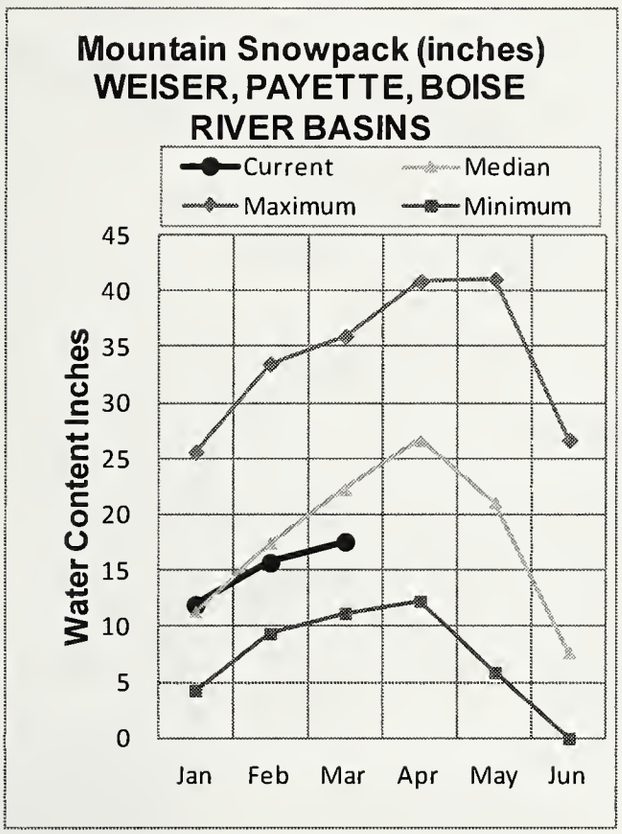
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

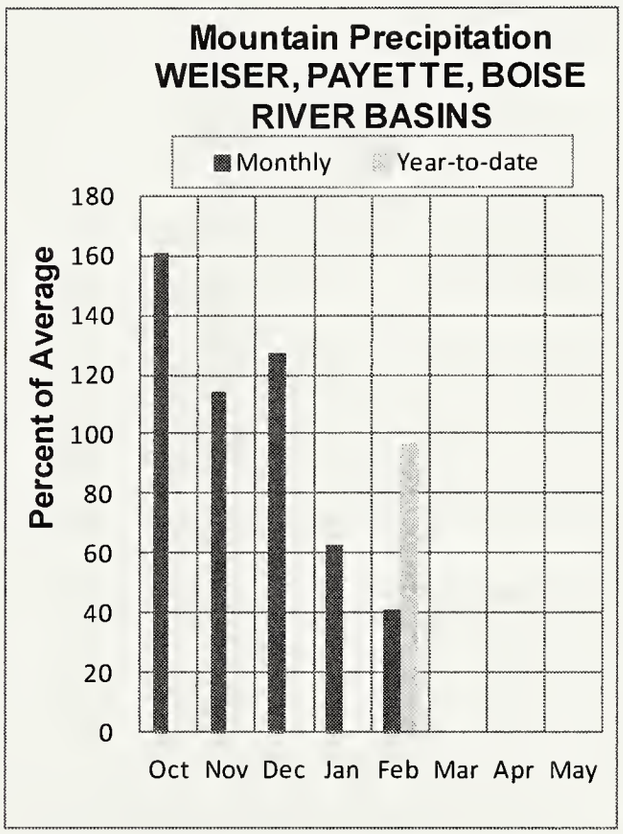
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS

MARCH 1, 2013





WATER SUPPLY OUTLOOK

February was another dry month for the west central mountains and snowpacks continue to lag behind last year. A little more than half the normal February amount fell in the Weiser basin, while the Payette and Boise basins received only 40% of their normal monthly amount making February the driest month this water year. Water year to date precipitation amounts since October first range from 110% of average in the Weiser basins to near average in the Payette and down to 88% for the Boise basin. When compared to the 1981-2010 medians snowpacks range from 70% of normal in the Weiser and Boise basins to 77% in the Payette. Keep in mind these percentages are inflated due to the new lower normals. If the 1971-2000 averages were used for comparison, percentages would be another 6-10% less. Fortunately, reservoir storage is 111% of average, 60% of capacity, for the three reservoirs in the Boise system and 114% of average, 67% of capacity for the Payette system. Streamflow forecasts are best in the Payette basin where the Payette River near Horseshoe Bend is forecast at 88% of average. The Weiser River's April-July forecast is for 84% of average. The Boise basin's forecasts are all less than 80% of average with the Boise River near Boise forecast at just 73% of average streamflow for the April-July period. Adding the Boise River's 50% exceedance forecast to February 28 reservoir storage the total surface water supply is 1,612,000 acre-feet. Boise water users need at least 1,500,000 acre-feet for an adequate surface water supply, so current conditions are adequate. Above normal snow in March would help ensure an adequate summer water supply. Snowfall below 6,500 feet elevation would be ideal since snowpacks in that zone are about half of normal.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	MAR-JUL	215	365	450	85	540	770	530
	APR-JUL	137	250	310	84	380	555	370
	APR-SEP	154	270	335	84	405	585	400
SF Payette R at Lowman	APR-JUL	220	260	290	73	320	375	400
	APR-SEP	255	300	335	74	370	430	455
Deadwood Resv Inflow (1,2)	APR-JUL	60	87	99	81	111	138	123
	APR-SEP	64	93	106	81	119	148	131
Lake Fork Payette R nr McCall	APR-JUL	59	69	76	95	84	96	80
	APR-SEP	60	70	78	94	86	98	83
NF Payette R at Cascade (1,2)	APR-JUL	250	375	430	89	485	610	485
	APR-SEP	265	385	440	89	495	615	495
NF Payette R nr Banks (2)	APR-JUL	400	490	555	89	620	710	625
	APR-SEP	395	490	560	88	630	725	640
Payette R nr Horseshoe Bend (1,2)	APR-JUL	895	1170	1300	88	1430	1710	1480
	APR-SEP	940	1280	1430	88	1580	1920	1630
Boise R nr Twin Springs (1)	APR-JUL	270	390	445	76	500	620	585
	APR-SEP	295	425	485	76	545	675	635
SF Boise R at Anderson Ranch Dam (1,	APR-JUL	200	320	370	78	420	540	475
	APR-SEP	220	340	395	78	450	570	510
Mores Ck nr Arrowrock Dam	APR-JUL	32	50	64	56	80	108	115
	APR-SEP	33	52	67	56	84	112	119
Boise R nr Boise (1,2)	APR-JUN	545	735	820	72	905	1100	1140
	APR-JUL	505	790	920	73	1050	1330	1260
	APR-SEP	585	870	1000	74	1130	1410	1360

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Mann Creek	11.1	4.4	3.6	5.2
Cascade	693.2	532.4	497.2	457.6
Deadwood	161.9	98.4	98.0	88.9
Anderson Ranch	450.2	270.4	378.1	247.0
Arrowrock	272.2	233.8	256.5	185.9
Lucky Peak	293.2	107.7	120.9	120.5
Lake Lowell (Deer Flat)	165.2	118.2	118.6	97.7

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Mann Creek	1	93	73
Weiser River	8	84	68
North Fork Payette	9	97	81
South Fork Payette	5	87	79
Payette Basin Total	16	91	77
Middle & North Fork Boise	5	72	69
South Fork Boise River	9	77	73
Mores Creek	6	66	57
Boise Basin Total	17	72	66
Canyon Creek	2	44	35

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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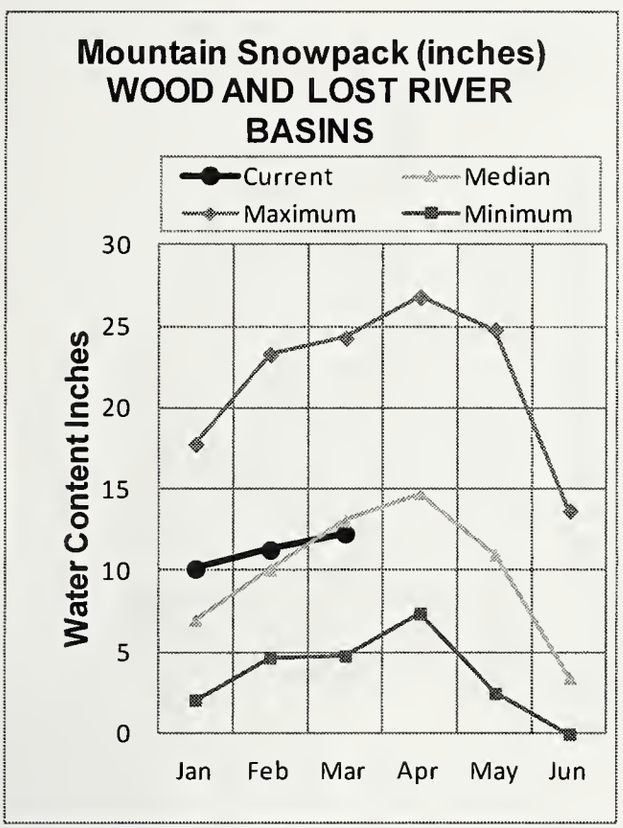
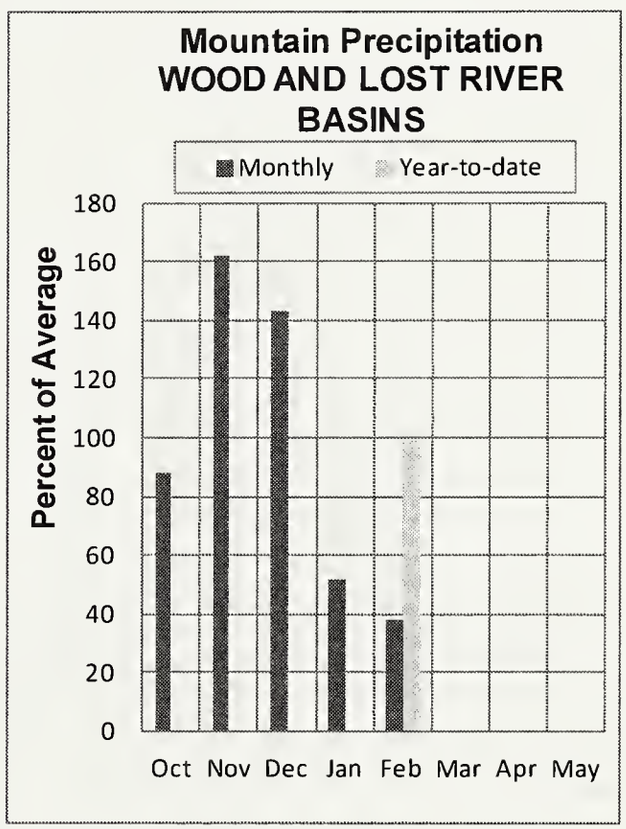
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WOOD and LOST RIVER BASINS

MARCH 1, 2013





WATER SUPPLY OUTLOOK

Central Idaho really missed out on February precipitation, receiving just one-third of the normal amount for the month. Precipitation percentages ranged from a low of only 28% of normal in the Big Wood, increasing to 32% in the Big Lost, 38% in the Little Wood, and to a whopping 50-75% in the Little Lost and Birch basins. The below normal precipitation decreased the snowpacks 10-20 percentage points with the Big Wood now at 87% of median, Little Wood near normal at 98%, and the basins from the Big Lost to Mud Lake at about 105%. These basins are the highest in the state, but that is nothing to brag about, because based on last year's average the snow would be about 77% in the Big Wood and 94% in the Big Lost. Compared to the rest of the state, the current snowpack is in better shape as it also contains 75-85% of the seasonal peaks that occur in early April. This means that if March precipitation is like January or February, the snowpacks will end the season in early April in the 75-85% of median range. Overall, the Big Wood basin snowpack is similar to last year at this time; while the snowpack is better than last year in the rest of these central Idaho mountains. The elevation gradient still exits with the high sites holding more snow than the sites below 6,500 feet. Water users need to factor this into their decision making process along with the switch from the averages to medians. Based on the 27,266 acre-feet of water stored in Magic Reservoir, near normal runoff is needed to provide marginally adequate supplies. Magic Inflow forecast decreased to 86% of average. Water supplies fare better in the Little Wood, Big Lost and Little Lost with projections in the near normal range. Good base flows for several years now in the Big Lost and Little Lost will hopefully hold up and make up for potential deficits from surface runoff this year if the dry weather persists.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	APR-JUL	93	170	205	87	240	315	235
	APR-SEP	94	191	235	89	280	375	265
Big Wood R ab Magic Res	APR-JUL	49	106	144	85	182	240	170
	APR-SEP	72	116	155	85	200	285	182
Camas Ck nr Blaine	APR-JUL	12.7	17.3	41	50	65	100	82
	APR-SEP	13.3	28	42	51	58	87	83
Big Wood R bl Magic Dam (2)	APR-JUL	76	159	215	86	270	355	250
	APR-SEP	102	178	230	87	280	360	265
Little Wood R ab High Five Ck	MAR-JUL	35	60	77	100	94	119	77
	MAR-SEP	43	65	82	100	102	134	82
Little Wood R near Carey (2)	MAR-JUL	37	65	84	98	103	131	86
	MAR-SEP	54	75	89	97	103	124	92
	APR-JUL	29	56	75	97	94	121	77
Big Lost R at Howell Ranch	APR-JUL	98	137	163	103	189	230	159
	APR-SEP	109	154	184	102	215	260	180
Big Lost R Below Mackay Res	APR-JUL	60	99	126	102	153	192	123
	APR-SEP	78	123	154	103	185	230	150
Little Lost R nr Howe	APR-JUL	15.0	21	25	89	30	38	28
	APR-SEP	18.4	26	31	91	37	47	34
Camas Ck at Camas	APR-JUL	8.2	20	28	100	36	48	28

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Magic	191.5	27.3	127.7	72.5
Little Wood	30.0	18.8	26.1	17.4
Mackay	44.4	34.5	39.8	29.3

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Big Wood ab Hailey	8	109	94
Camas Creek	5	57	49
Big Wood Basin Total	13	93	80
Fish Creek	3	125	74
Little Wood River	7	131	84
Big Lost River	6	170	103
Little Lost River	4	127	105
Birch-Medicine Lodge Cree	4	126	100
Camas-Beaver Creeks	4	117	81

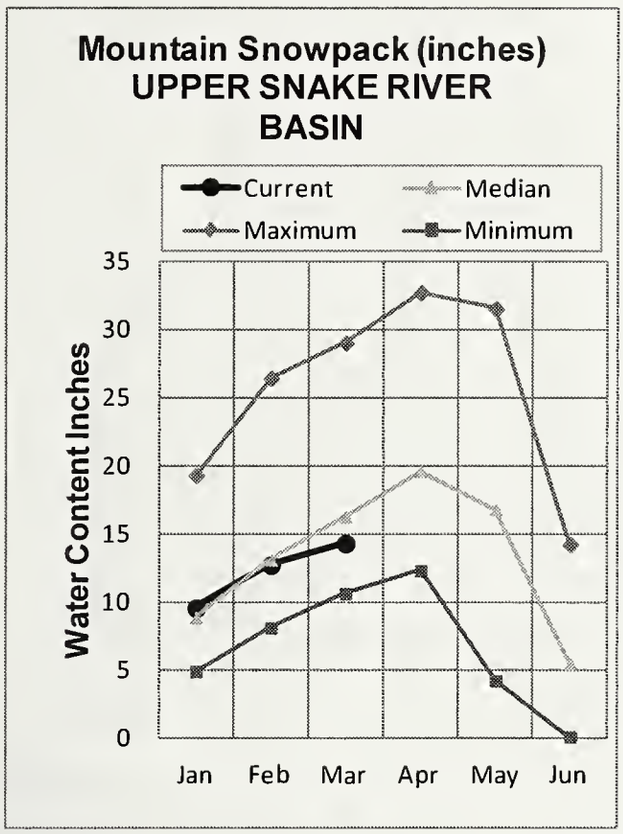
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

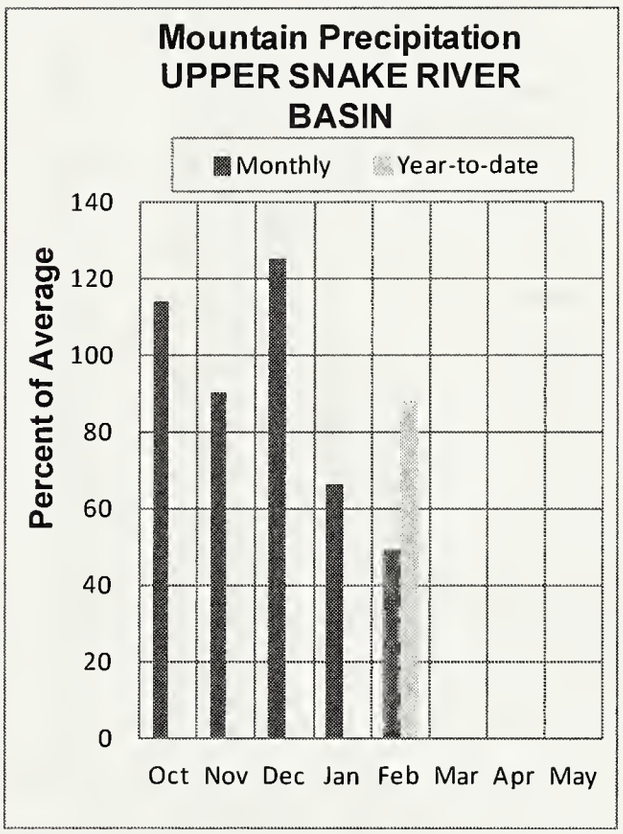
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

UPPER SNAKE BASIN

MARCH 1, 2013





WATER SUPPLY OUTLOOK

Another month of below normal precipitation has put the Upper Snake's summer water supply in jeopardy. February precipitation in the Upper Snake basin was half the normal. While most of Idaho has received more than average amounts of precipitation since October 1, the Upper Snake only has 84% of normal precipitation for the water year. The snowpack above American Falls is 83% of normal based on the 1981-2010 median. The snowpack for the Snake above Palisades Reservoir has mirrored the 2002 snowpack much of this season, especially during the last month. Although snow is similar to 2002, reservoir storage this year is much better which is good news because 2002 had a miserable water supply. Reservoir storage for the eight reservoirs in the Upper Snake system is normal at 67% of capacity. Streamflow forecasts mostly range from 70-90% of average. The Snake River near Heise forecast decreased to 77% of average. Based on January 31 storage levels in Palisades and Jackson, runoff in the 88% of average range is needed for marginally adequate surface irrigation supplies. This amount is roughly equivalent to 2012 runoff which was 90% of the new medians. Adding this month's 50% exceedance forecast for Snake River near Heise to February 28 reservoir storage levels in Jackson Lake and Palisades the total available surface water supply is 4,152,000 acre-feet. Water users need 4,400,000 acre-feet for an adequate surface water supply, so current conditions will produce slightly less than an adequate amount. Above normal snow in March is needed to ensure enough water for the Snake's numerous water users.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fork nr Ashton (2)	APR-JUL	340	405	450	85	500	575	530
	APR-SEP	470	550	605	85	665	755	710
Henrys Fork nr Rexburg (2)	APR-JUL	910	1070	1180	84	1290	1450	1400
	APR-SEP	1200	1380	1500	84	1620	1800	1790
Falls R nr Ashton (2)	APR-JUL	240	280	305	84	335	375	365
	APR-SEP	290	335	365	84	400	450	435
Teton R nr Driggs	APR-JUL	74	94	109	71	125	151	154
	APR-SEP	92	118	137	71	158	191	193
Teton R nr St. Anthony	APR-JUL	184	230	265	73	300	360	365
	APR-SEP	220	275	315	72	360	425	435
Snake R at Flagg Ranch	APR-JUL	324	378	415	89	452	506	465
	APR-SEP	351	410	450	88	490	549	510
Snake R nr Moran (1,2)	APR-JUL	453	578	635	83	692	817	765
	APR-SEP	496	640	705	83	770	914	845
Pacific Ck At Moran	APR-JUL	92	119	137	84	155	182	164
	APR-SEP	98	126	145	84	164	192	173
Buffalo Fork ab Lava nr Moran	APR-JUL	188	222	245	88	268	302	280
	APR-SEP	209	248	275	86	302	341	320
Snake R nr Alpine (1,2)	APR-JUL	1200	1544	1700	78	1856	2200	2170
	APR-SEP	1369	1775	1960	78	2145	2551	2500
Greys R Nr Alpine	APR-JUL	177	214	240	79	266	303	305
	APR-SEP	204	249	280	78	311	356	360
Salt R Nr Etna	APR-JUL	94	163	210	70	257	326	300
	APR-SEP	125	208	265	72	322	405	370
Snake R nr Irwin (1,2)	APR-JUL	1678	2119	2320	77	2521	2962	3010
	APR-SEP	1997	2487	2710	77	2933	3423	3500
Snake R nr Heise (2)	APR-JUL	1934	2259	2480	77	2701	3026	3240
	APR-SEP	2294	2661	2910	77	3159	3526	3780
Willow Ck nr Ririe	MAR-JUL	4.8	21	38	57	55	81	67
Blackfoot R ab Res nr Henry	APR-JUN	18.0	30	40	67	51	71	60
Snake R nr Blackfoot (1,2)	APR-JUL	2279	2885	3160	74	3435	4041	4260
	APR-SEP	2784	3524	3860	74	4196	4936	5220
Portneuf R at Topaz	MAR-JUL	35	44	51	67	58	70	76
	MAR-SEP	45	55	63	68	71	85	93
Snake R at Neeley (1,2)	APR-JUL	610	1428	1800	68	2172	2990	2650
	APR-SEP	622	1508	1910	68	2312	3198	2810

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Henrys Lake	90.4	91.0	87.8	80.6
Island Park	135.2	103.7	110.4	104.7
Grassy Lake	15.2	12.9	12.3	12.1
Jackson Lake	847.0	621.3	640.0	434.7
Palisades	1400.0	620.3	1223.5	925.7
Ririe	80.5	46.6	48.5	41.2
Blackfoot	348.7	229.4	289.8	181.3
American Falls	1672.6	1344.7	1320.0	1296.0

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
Henrys Fork-Falls River	9	93	89
Teton River	8	79	78
Henrys Fork above Rexburg	17	87	84
Snake above Jackson Lake	9	73	84
Pacific Creek	3	66	87
Gros Ventre River	3	88	88
Hoback River	5	74	81
Greys River	4	79	84
Salt River	5	82	84
Snake above Palisades	27	76	84
Willow Creek	7	83	73
Blackfoot River	5	79	77
Portneuf River	6	82	72
Snake abv American Falls	45	80	83

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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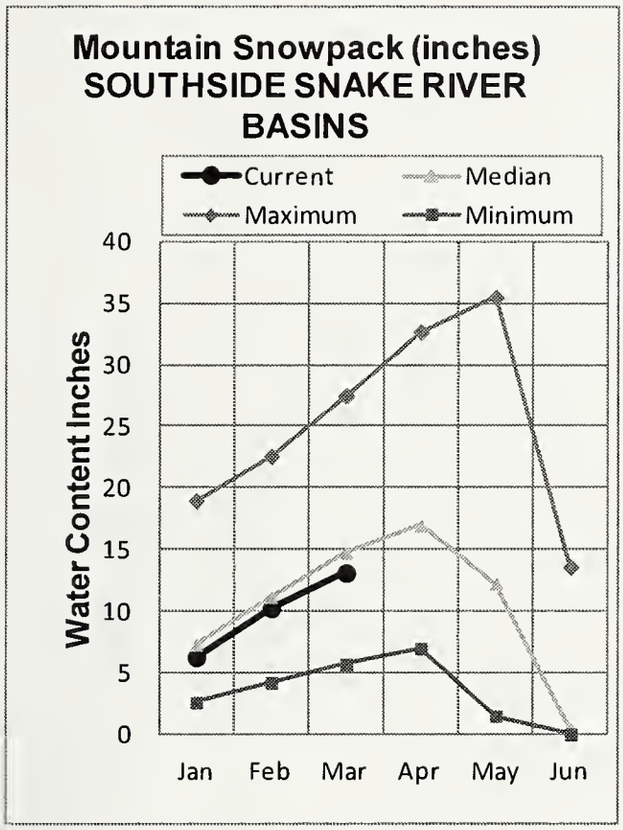
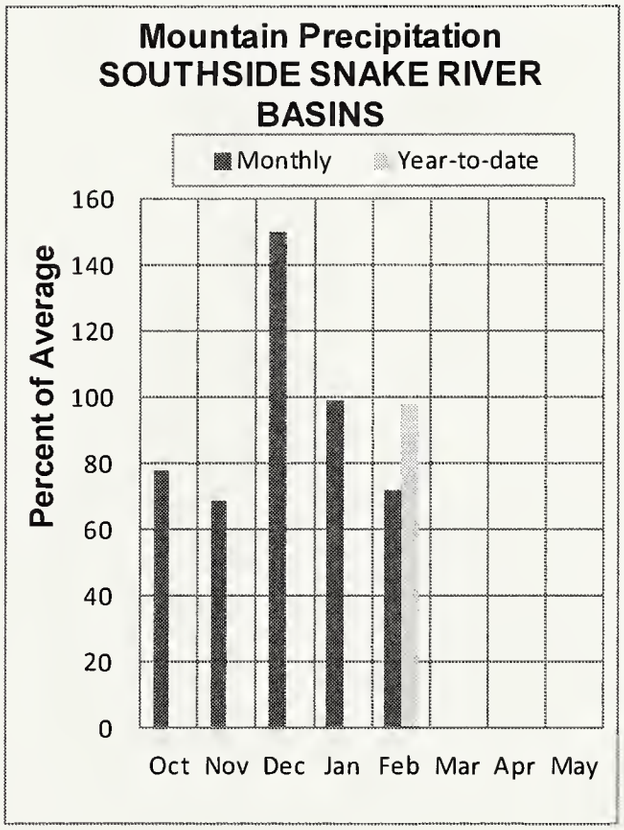
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS

MARCH 1, 2013





WATER SUPPLY OUTLOOK

Overall the basins south of the Snake River received 72% of normal precipitation in February, better than any other region south of the Panhandle. Amounts ranged widely from about 110% of average in the Salmon Falls and Bruneau basins to 48% in the Owyhee basin. Water year precipitation since October 1 is near average for all basins. Snowpacks are near normal in Bruneau and Salmon Falls basins, 84% of median in the Goose and Trapper basins, and 72% of median in the Owyhee basin. Reservoir storage is below normal across these basins. Oakley Reservoir is storing 22,200 acre-feet which is 88% of normal; Salmon Falls has 32,600 acre-feet, 69% of normal; and Owyhee Reservoir has 304,000 acre-feet, 62% of normal. Streamflow forecasts are good for Oakley Reservoir inflow at 93% of normal. The Bruneau River is forecast at 83%, Salmon Falls Creek at 80%, and the Owyhee River below Owyhee Dam at 73%. The Surface Water Supply Index (SWSI) can be used to evaluate summer water supplies by combining streamflow forecasts and reservoir storage. Based on this month's data water users in the Owyhee basin should be fine this summer thanks to ample reservoir storage. The water supply for Oakley's water users is currently marginally adequate with only 1,200 acre-feet to spare based on the 50% forecast. Salmon Falls tract users have the most on the line if March is dry. Based on the 50% forecast Salmon Falls users should expect 101,600 acre-feet, which is short of the 110,000 acre-feet needed for an adequate supply. Above normal snowfall is needed in March to ensure adequate runoff, otherwise users will be dependent on good spring rain.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Goose Ck ab Trapper Ck nr Oakley	MAR-JUL	9.4	16.3	21	96	26	33	22
	MAR-SEP	9.7	17.0	22	92	27	34	24
Trapper Ck nr Oakley	MAR-JUL	3.9	4.9	5.5	93	6.1	7.1	5.9
	MAR-SEP	5.0	6.0	6.7	94	7.4	8.4	7.1
Oakley Res Inflow (2)	MAR-JUL	12.8	21	26	93	31	39	28
	MAR-SEP	14.9	23	29	94	35	43	31
Salmon Falls Ck nr San Jacinto	MAR-JUN	37	51	62	81	74	93	77
	MAR-JUL	38	53	65	80	78	99	81
	MAR-SEP	41	57	69	81	82	104	85
Bruneau R nr Hot Springs	MAR-JUL	97	139	171	83	205	265	205
	MAR-SEP	102	145	179	83	215	275	215
Reynolds Ck at Tollgate	MAR-JUL	0.9	3.3	4.9	56	6.5	8.9	8.8
Owyhee R nr Gold Ck (2)	MAR-JUL	6.2	9.9	13.2	47	17.1	24	28
	MAR-SEP	6.1	9.4	12.2	45	15.5	21	27
Owyhee R nr Rome	MAR-JUL	156	285	375	73	465	595	515
	MAR-SEP	167	300	390	74	480	615	530
Owyhee R bl Owyhee Dam (2)	MAR-JUL	223	325	405	73	494	642	555
	MAR-SEP	247	350	430	74	518	663	585
	APR-SEP	149	235	305	75	385	515	405
Snake R at King Hill (1,2)	APR-JUL	495	1220	1540	59	1870	2600	2620
Snake R nr Murphy (1,2)	APR-JUL	605	1380	1730	66	2080	2860	2610
Snake R at Weiser (1,2)	APR-JUL	620	2270	3020	60	3770	5420	5010
Snake R at Hells Canyon Dam (1,2)	APR-JUL	990	2670	3430	60	4200	5880	5760
Snake R bl Lower Granite Dam (1,2)	APR-JUL	6900	11900	14200	72	16400	21400	19850

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Oakley	75.6	22.2	36.7	25.3
Salmon Falls	182.6	32.6	89.0	47.1
WILDHORSE RESERVOIR	71.5	25.7	49.9	34.5
OWYHEE	715.0	303.6	549.7	489.1
Brownlee	1420.0	668.8	1134.7	1129.0

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Raft River	4	99	82
Goose-Trapper Creeks	4	92	85
Salmon Falls Creek	7	124	101
Bruneau River	8	125	91
Reynolds Creek	6	79	64
Owyhee Basin Total	10	108	72
Owyhee Basin SNOTEL	8	113	75

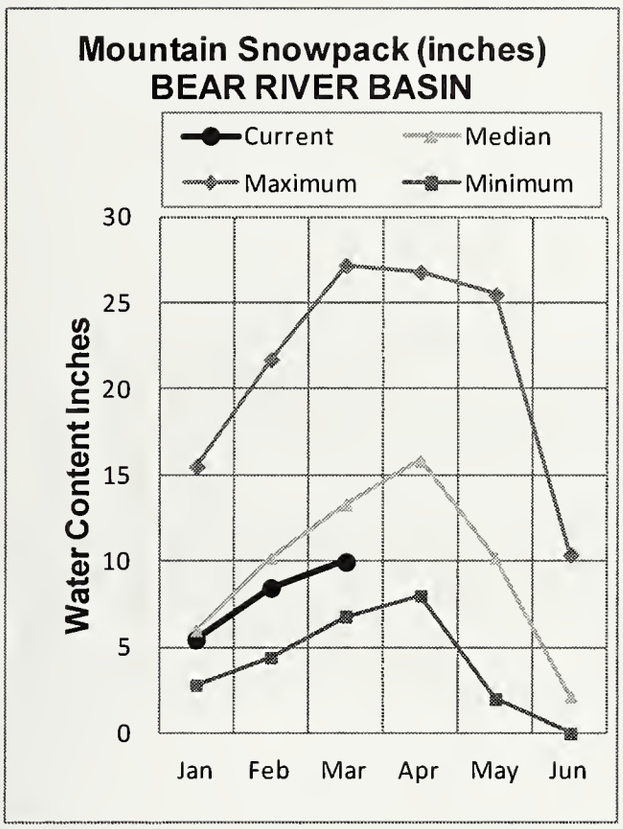
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

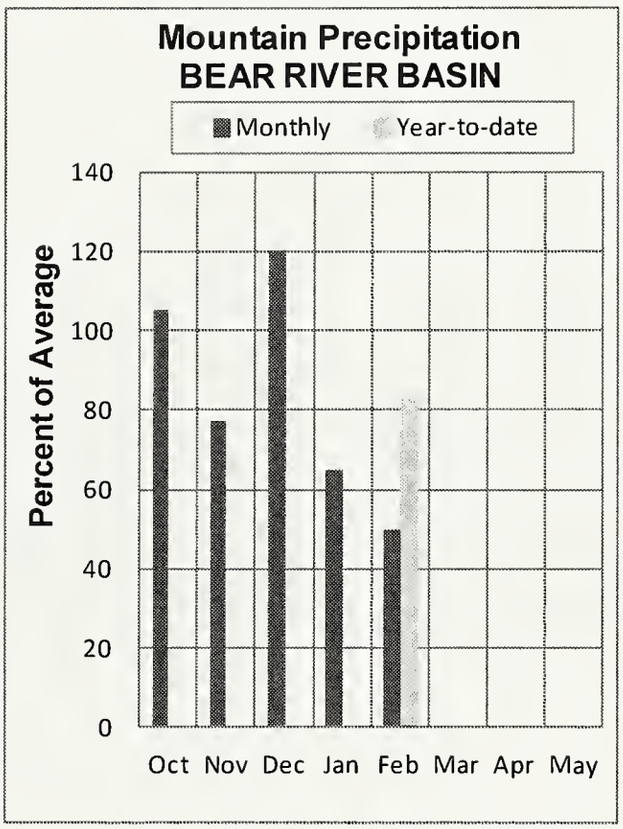
The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BEAR RIVER BASIN

MARCH 1, 2013





WATER SUPPLY OUTLOOK

For the second month in a row the Bear River experienced below normal precipitation. February recorded only half its normal monthly amount. Water year precipitation since October 1 is 83% of average, the worst in Idaho. The Bear's snowpack is a little less than last year at this time and is currently 76% of the 1981-2010 median for March 1. Fortunately for water users Bear Lake is storing 902,200 acre-feet which is 127% of average and 63% of capacity. Little new snow in February caused streamflow forecasts to drop significantly from last month. The Bear River below Stewart Dam is now forecast at just 14% of average for the April-July period. Other forecasts are better and range from about 45% for the Little Bear and Logan Rivers to 60% for the Bear River near the Utah-Wyoming state line. Water users who get their water from Bear Lake will weather this summer with ease. However, natural streamflow that isn't assisted by storage facilities will be much less than normal. There are still four to six weeks left in the snowpack accumulation season, so let's hope this roller coaster precipitation pattern begins climbing again as spring approaches.

BEAR RIVER BASIN
Streamflow Forecasts - March 1, 2013

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	35	54	67	60	80	99	112
	APR-SEP	37	59	74	60	88	110	123
Bear R ab Res nr Woodruff	APR-JUL	23	51	70	58	89	117	121
	APR-SEP	19.0	48	68	53	88	116	128
Big Ck nr Randolph	APR-JUL	0.1	1.1	1.9	50	2.7	3.8	3.8
Smiths Fk nr Border	APR-JUL	26	42	53	60	64	81	89
	APR-SEP	34	52	65	63	77	96	104
Bear R bl Stewart Dam	APR-JUL	2.0	9.0	25	14	74	143	183
	APR-SEP	2.0	12.0	26	13	80	159	205
Little Bear R at Paradise	APR-JUL	1.2	9.3	18.1	44	27	40	41
Logan R nr Logan	APR-JUL	19.0	38	51	46	64	83	111
Blacksmith Fork nr Hyrum	APR-JUL	1.2	15.5	25	58	35	49	43

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Bear Lake	1421.0	902.2	1112.7	713.1
Montpelier Creek	4.0	1.5	3.4	1.8

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 2013

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
Smiths & Thomas Forks	4	80	80
Bear River ab WY-ID line	4	80	80
Montpelier Creek	2	89	73
Mink Creek	4	96	71
Cub River	3	91	77
Bear River ab ID-UT line	18	88	77
Malad River	1	79	80

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1981-2010 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: Streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Dec 2011).**

Panhandle River Basins

Kootenai R at Leonia, MT
+ Lake Koocanusa storage change
Moyie R at Eastport – no corrections
Smith Creek nr Porthill – no corrections
Boundary Ck nr Porthill – no corrections
Clark Fork R at Whitehorse Rapids
+ Hungry Horse storage change
+ Flathead Lake storage change
+ Noxon Rapids Res storage change
Pend Oreille Lake Inflow
+ Pend Oreille R at Newport, WA
+ Hungry Horse storage change
+ Flathead Lake storage change
+ Noxon Rapids storage change
+ Pend Oreille Lake storage change
+ Priest Lake storage change
Priest R nr Priest R
+ Priest Lake storage change
NF Coeur d'Alene R at Enaville - no corrections
St. Joe R at Calder- no corrections
Spokane R nr Post Falls
+ Coeur d'Alene Lake storage change
Spokane R at Long Lake, WA
+ Coeur d'Alene Lake storage change
+ Long Lake, WA storage change

Clearwater River Basin

Selway R nr Lowell - no corrections
Lochsa R nr Lowell - no corrections
Dworshak Res Inflow
+ Clearwater R nr Peck
- Clearwater R at Orofino
+ Dworshak Res storage change
Clearwater R at Orofino - no corrections
Clearwater R at Spalding
+ Dworshak Res storage change

Salmon River Basin

Salmon R at Salmon - no corrections
Lemhi R nr Lemhi – no corrections
MF Salmon R at MF Lodge – no corrections
SF Salmon R nr Krassel Ranger Station – no corrections
Johnson Creek at Yellow pine – no corrections
Salmon R at White Bird - no corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser - no corrections
SF Payette R at Lowman - no corrections
Deadwood Res Inflow
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res storage change
Lake Fork Payette R nr McCall – no corrections
NF Payette R at Cascade
+ Cascade Res storage change
+ Payette Lake storage change
NF Payette R nr Banks
+ Cascade Res storage change
+ Payette Lake storage change
Payette R nr Horseshoe Bend
+ Cascade Res storage change
+ Deadwood Res storage change
+ Payette Lake storage change
Boise R nr Twin Springs - no corrections
SF Boise R at Anderson Ranch Dam
+ Anderson Ranch Res storage change
Mores Ck nr Arrowrock Dam – no corrections
Boise R nr Boise
+ Anderson Ranch Res storage change
+ Arrowrock Res storage change
+ Lucky Peak Res storage change

Wood and Lost River Basins

Big Wood R at Hailey - no corrections
Big Wood R ab Magic Res
+ Big Wood R at Stanton Crossing nr Bellevue
+ Willow Ck
Camas Ck nr Blaine – no corrections
Big Wood R bl Magic Dam nr Richfield
+ Magic Res storage change
Little Wood R ab High Five Ck – no corrections
Little Wood R nr Carey
+ Little Wood Res storage change
Big Lost R at Howell Ranch - no corrections
Big Lost R bl Mackay Res nr Mackay
+ Mackay Res storage change
Little Lost R bl Wet Ck nr Howe - no corrections

Upper Snake River Basin

Henrys Fork nr Ashton
+ Henrys Lake storage change
+ Island Park Res storage change
Falls R nr Ashton
+ Grassy Lake storage change
+ Diversions from Falls R ab nr Ashton
Teton R nr Driggs - no corrections
Teton R nr St. Anthony
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony
+ Teton Dam for water year 1976 only

Henrys Fork nr Rexburg
+ Henrys Lake storage change
+ Island Park Res storage change
+ Grassy Lake storage change
+ 7 Diversions from Henrys Fk btw Ashton to St. Anthony
+ 21 Diversions from Henrys Fk btw St. Anthony to Rexburg
+ 3 Diversions from Falls R ab Ashton
+ 6 Diversions from Falls R nr Ashton to Chester
Snake R nr Flagg Ranch, WY – no corrections
Snake R nr Moran, WY
+ Jackson Lake storage change
Pacific Ck at Moran, WY - no corrections
Buffalo Fork ab Lava nr Moran, WY - no corrections
Gros Ventre R at Kelly, WY - no corrections
Snake R ab Res nr Alpine, WY
+ Jackson Lake storage change
Greys R nr Alpine, WY - no corrections
Salt R R nr Etna, WY - no corrections
Snake R nr Irwin
+ Jackson Lake storage change
+ Palisades Res storage change
Snake R nr Heise
+ Jackson Lake storage change
+ Palisades Res storage change
Willow Ck nr Ririe
+ Ririe Res storage change
The forecasted natural volume for Willow Creek nr Ririe does not include an adjustment for Grays Lake water diverted from Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.
Blackfoot R ab Res nr Henry
+ Blackfoot Res storage change
The forecasted Blackfoot Reservoir Inflow includes Grays Lake water diverted from the Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.
Portneuf R at Topaz - no corrections
Snake R at Neeley
+ Jackson Lake storage change
+ Palisades Res storage change
+ American Falls storage change
+ Teton Dam for water year 1976 only

Southside Snake River Basins
Goose Ck nr Oakley - no adjustments
Trapper Ck nr Oakley - no adjustments
Oakley Res Inflow - *flow does not include Birch Creek*
+ Goose Ck
+ Trapper Ck
Salmon Falls Ck nr San Jacinto, NV - no corrections
Bruneau R nr Hot Springs - no corrections
Reynolds Ck at Tollgate - no corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Res storage change
Owyhee R nr Rome, OR – no Corrections
Owyhee R bl Owyhee Dam, OR
+ Owyhee Res storage change
+ Diversions to North and South Canals

Bear River Basin
Bear R nr UT-WY Stateline, UT- no corrections
Bear R abv Res nr Woodruff, UT- no corrections
Big Ck nr Randolph, UT - no corrections
Smiths Fork nr Border, WY - no corrections
Bear R bl Stewart Dam nr Montpelier
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise, UT - no corrections
Logan R nr Logan, UT - no corrections
Blacksmith Fk nr Hyrum, UT - no corrections

Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)
Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS repo usable storage, which includes active and inactive storage. **(Revised Dec 2011)**

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	NRCS Capacity	NRCS Capacity Includes
Panhandle Region						
Hungry Horse	39.73	---	3451.00	---	3451.0	Active
Flathead Lake	Unknown	---	1791.00	---	1791.0	Active
Noxon Rapids	Unknown	---	335.00	---	335.0	Active
Pend Oreille	406.20	112.40	1042.70	---	1561.3	Dead + Inactive + Active
Coeur d'Alene	Unknown	13.50	225.00	---	238.5	Inactive + Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead + Inactive + Active
Clearwater Basin						
Dworshak	Unknown	1452.00	2016.00	---	3468.0	Inactive + Active
Weiser/Boise/Payette Basins						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	Unknown	46.70	646.50	---	693.2	Inactive + Active
Deadwood	Unknown	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive + Active
Arrowrock	Unknown	---	272.20	---	272.2	Active
Lucky Peak	Unknown	28.80	264.40	13.80	293.2	Inactive + Active
Lake Lowell	7.90	5.80	159.40	---	165.2	Inactive + Active
Wood/Lost Basins						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	Unknown	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
Henrys Lake	Unknown	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active + Surcharge
Grassy Lake	Unknown	---	15.18	---	15.2	Active
Jackson Lake	Unknown	---	847.00	---	847.0	Active
Palisades	44.10	155.50	1200.00	---	1400.0	Dead + Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	Unknown	---	348.73	---	348.7	Active
American Falls	Unknown	---	1672.60	---	1672.6	Active
Southside Snake Basins						
Oakley	0.00	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active + Inactive
Wildhorse	Unknown	---	71.50	---	71.5	Active
Owyhee	406.83	---	715.00	---	715.0	Active
Brownlee	0.45	444.70	975.30	---	1420.0	Inactive + Active
Bear River Basin						
Bear Lake	5000.00	119.00	1302.00	---	1421.0 includes 119	Active + Inactive: that can be released
Montpelier Creek	0.21	---	3.84	---	4.0	Dead + Active

Interpreting Water Supply Forecasts

Introduction
Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

90 Percent Chance of Exceedance Forecast. There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

70 Percent Chance of Exceedance Forecast. There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

50 Percent Chance of Exceedance Forecast. There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

30 Percent Chance of Exceedance Forecast. There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

10 Percent Chance of Exceedance Forecast. There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

To Decrease the Chance of Having Less Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of .having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

To Decrease the Chance of Having More Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

Using the forecasts - an Example
Using the 50 Percent Exceedance Forecast. Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

Using the 90 and 70 Percent Exceedance Forecasts. If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

Using the 30 or 10 Percent Exceedance Forecasts. If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

Weiser, Payette, Boise River Basins
Streamflow Forecasts – January 2006

Forecast Point	Forecast Period	Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000 AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	690

*90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table

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Numerous other groups and agencies provide funding and/or cooperative support for the collection, operation and maintenance of the Cooperative Idaho Snow Survey Program. Their cooperation is greatly appreciated.